21172

S/141/60/003/006/011/025
E192/E382

9.2560 (1054, 1139, 1159, 1154)

AUTHOR: Malakhov, A.N.

TITLE: Fluctuations of the Transfer Function of a Crystal-diode Mixer

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Radiofizika, 1960, Vol. 3, No. 6, pp. 1001-1003

TEXT: The mixer considered can be represented by the equivalent circuit shown in Fig. 1. The local oscillator voltage $u_{\Gamma} = V_{\Gamma}\cos(\omega_{\Gamma}t)$ and a signal $u_c = V_c\cos(\omega_c t)$ are applied to the input of the mixer, the amplitude V_c being much smaller than V_{Γ}. Only the direct voltage $V_o = i_o r$ (where i_o is the direct current flowing through the crystal and r is the DC resistance of the load) and the intermediate frequency voltage $u_n = V_n\cos(\omega_o t)$ which is developed across the load R, are of interest. It is assumed that the capacitance C shorts the load at

Card 1/5

S/141/60/003/02/009/023
E192/E382

Width of the Spectral Line and the Parameter Fluctuations in Oscillating Systems

flicker noise. It can be seen that the flicker noise leads to amplitude fluctuations only and has no noticeable effect on frequency.
There are 9 references, 1 of which is English and 8 are Soviet.

ASSOCIATION: Nauchno-issledovatel'skiy radiofizicheskiy institut pri Gor'kovskom universitete (Scientific-research Radiophysics Institute of Gor'kiy University)

SUBMITTED: November 12, 1959

√c

Card 7/7

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001031700031-6

S/141/60/003/02/009/023
E192/E382

Width of the Spectral Line and the Parameter Fluctuations in Oscillating Systems

of the coil, M is the mutual inductance coefficient in the feedback loop, while C and S represent the capacitance of the circuit and the slope of the tube, respectively. It is assumed that both C and S are fluctuating quantities. It is shown that the function E(t) for this case is expressed by Eq (69), where Q is the quality factor of the resonant circuit. If it is now assumed that only the capacitance is fluctuating, the frequency and amplitude fluctuation spectra are expressed by Eqs (70). The width of the spectral line due to the capacitance fluctuations is expressed by Eq (77). In the case when the slope S is a fluctuating quantity (C is constant), the frequency and amplitude fluctuation spectral densities are expressed by Eqs (80). If it is assumed that the fluctuations of the slope are comparatively slow these spectral densities are given by Eqs (81). This last formula can be used to analyse the effect of the

Card6/7

S/141/60/003/02/009/023
E192/E382

Width of the Spectral Line and the Parameter Fluctuations in Oscillating Systems

spectral densities are given by Eqs (49). When the fluctuating parameter changes comparatively slowly, the spectral densities for determining the frequency and amplitude fluctuations are defined in Eqs (51). Consequently, W_ν and W_α are expressed by:

$$W_\nu(\Omega) = \frac{1}{\delta^2(\Omega^2 + p^2)}\left[(a_{\parallel}A_{10} + a_{\perp}B_{10})^2\Omega^2 + (b_{\perp}A_{10}\sigma - b_{\parallel}B_{10})^2\right]W_{\Delta\sigma}(\Omega);$$

$$W_\alpha(\Omega) = \frac{1}{\delta^2(\Omega^2 + p^2)}(a_{\perp}A_{10} - a_{\parallel}B_{10})^2 W_{\Delta\sigma}(\Omega) \qquad (52)$$

In the case when $a_{\perp} = b_{\parallel} = 0$, Eqs (52) can be written as Eqs (53). The results are employed to investigate an LC-oscillator with the tuned circuit in the anode. The system is described by Eq (58), where x denotes the current in the inductance, r and L are the parameters

Card5/7

Vc

S/141/60/003/02/009/025
E192/E382

Width of the Spectral Line and the Parameter Fluctuations in Oscillating Systems

W_X and W_Y are spectral densities of the functions X and Y ; the functions W_{XY}^0 and W_{XY}^1 are defined by Eqs (28) and (29), respectively. The spectral density of the amplitude fluctuations W_α is expressed by Eq (31). It is seen, therefore, that W_ψ and W_α can be determined if the spectral densities W_X, W_Y, W_{XY}^0 and W_{XY}^1 are known. These spectral densities can be expressed (on the basis of Eqs (21)) through the corresponding spectral densities of the random functions X_q and Y_q . The relationships between these spectral densities are defined by Eqs (34) to (37). Now the spectral densities of X_q and Y_q can be expressed by the spectral densities of A_q and B_q . For the case of one fluctuating parameter, A_q and B_q can be expressed by Eqs (48), while the

Card4/7

S/141/60/003/02/009/025
E192/E382

Width of the Spectral Line and the Parameter Fluctuations in Oscillating Systems

and a_{kji} are defined by Eqs (9). The solution of Eq (10) is in the form of Eqs (12), where ρ and φ are slowly changing functions of time. The function F_{ji} can be represented by Eq (13). Consequently, E(t) can be expressed by Eq (15). This can also be written as Eq (16), where A_q and B_q are defined by Eqs (17) and (18). If only a narrow spectrum in the vicinity of the oscillation frequency is considered, the functions E(t) and $E_q(t)$ can be expressed by Eqs (19) and (20), where X_q, X, Y and Y_q are slowly changing functions of time. The frequency and amplitude fluctuations in a system whose noise is in the form of Eq (20) can be evaluated from Eqs (22) and (23) (Ref 1). The parameters p, a and b in these equations are defined by Eqs (24). On the basis of Eq (22) it is found that the spectrum of the frequency fluctuations W_ν is given by Eq (27), where

Card3/7

where $a_n \neq 0$ and $\ell = 1, 2 \ldots, m$ (such that $m \leq n$) . The function F in Eq (1) contains linear and non-linear terms. The approximate steady-state solution of Eq (1) is in the form of:

$$x = R \cos \vartheta , \quad \vartheta = \omega t + \varphi \qquad (2) .$$

The steady-state amplitude R_o and frequency ω_o are the roots of Eqs (4) and (5). Consequently, the approximate solution of Eq (1) is in the form of Eqs (6). It is now assumed that the system contains N parameters σ_j such that $\sigma_j = \bar{\sigma}_j + \Delta\sigma_j$, where $\Delta\sigma_j$ is the fluctuation of the parameters and $\bar{\sigma}_j$ is the average value of the parameter σ_j . Eq (1) can now be written as Eq (10), where E(t) is given by Eq (11). The parameters F_{ji}

VC

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001031700031-6

S/141/60/003/02/009/025
E192/E382

AUTHOR: Malakhov, A.N.

TITLE: Width of the Spectral Line and the Parameter Fluctuations in Oscillating Systems

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Radiofizika, 1960, Vol 3, Nr 2, pp 241 - 256 (USSR)

ABSTRACT: The behaviour of an oscillating system whose parameters undergo small random fluctuations is considered. The system generates oscillations which are very nearly sinusoidal and is described by the following differential equation:

$$\sum_k a_k \frac{d^k x}{dt^k} = a_n \frac{d^n x}{dt^n} + \dots + a_1 \frac{dx}{dt} + a_o x = \tag{1}$$

$$= F\left(x, \dots, \frac{d^\ell x}{dt^\ell}, \dots\right)$$

Card1/7

VC

On the Spectrum of the Flicker Noise SOV/109-4-1-8/30

grains. The double layers in semiconductors can be due to the potential barriers, while in gas discharges they may be localised in the oxide layer on the cathodes or in the cathode-fall region. The author expresses his gratitude to S.M. Rytov, V.S. [illegible] and I.L. Bershteyn for useful discussion of a number of the problems relating to the flicker noise. There are 2 figures and 41 references, 24 of which are English, 5 French, 5 German and 7 Soviet.

SUBMITTED: October 22, 1956

Card 4/4

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001031700031-6

position can be expressed in the form of Eq (13). The average square value of the expression given by Eq (13) can be expressed as the integral given by Eq (14); the process is stationary if the integral is convergent. When the pulses are given by Eqs (10) and (11), the average values can be expressed by Eqs (15). From the above, it follows that the process is non-stationary but since the average square value of noise is proportional to lnt , the non-stationariness is not particularly pronounced. The non-stationariness of the noise in vacuum tubes can be attributed to the following causes: 1) the flicker effect proper (frequencies from 10^{-1} to 10^{+4} c.p.s.); 2) the emission drift and 3) the ageing of the tube (frequencies of the order of 10^{-4} c.p.s.). The noise in vacuum tubes and in various other devices can be attributed to the presence of a double layer, that is, a very thin layer having a very high electrical field. In vacuum tubes, this is formed by the interface layer, while in granular composition resistors this may be due to high-resistance boundaries between various highly-conducting

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001031700031-6

(crystal detectors, contact photo-cells, photo-resistors, thermistors, etc.) and in gas-discharged tubes. Theoretically, Schottky (Ref 2) found that the spectral density can be expressed as Eq (2) but, unfortunately, this formula is not in agreement with the experimental data. One of the important parameters in the flicker noise theory is the lower limiting frequency f_0 which determines the applicability of Eq (1). This frequency has been determined by various authors for both the vacuum tubes and germanium semiconductors. It has not been possible to determine f_0 accurately but it was found that f_0 is as low as 10^{-5} c.p.s. The spectrum of the type $f^{-\alpha}$ can be derived by employing special pulses; these are shown in Figure 2 and defined by Eq (10). By using the pulses it can be assumed that the flicker noise is due to a superposition of certain unit processes (for example generation and capture of carriers in semiconductors and death of active centres on the cathode surfaces in electron tubes) which are in

the form of pulses defined by Eqs (10) and (11). This super-

AUTHOR: Malakhov, A.N. SOV/109-4-1-8/30

TITLE: On the Spectrum of the Flicker Noise (K voprosu o spektre flikker-shuma)

PERIODICAL: Radiotekhnika i Elektronika, 1959, Vol 4, Nr 1, pp 54 - 62 (USSR)

ABSTRACT: This brief but comprehensive review deals with the basic experimental and theoretical data relating to the flicker noise and discusses the fundamental difficulties of the flicker noise theory. It is pointed out that, on the basis of various experimental data, it is known that the spectral distribution of the fluctuation noise (for vacuum tubes in particular) is expressed by:

$$\overline{v_f^2} \sim I^{\beta} f^{-\alpha} \quad (1)$$

where β is approximately equal to 2. Parameter α depends on the type of tube and its operating conditions and is generally contained within the interval 0.6 to 2 . The above spectral density law is applicable to the frequency range of 0.1 c.p.s. to 5 kc/s. Flicker noise can also be observed in composition (granular) resistors, in semiconductors

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001031700031-6

68644

S/141/59/002/05/005/026

Optimum Parameters of a Radiometer

Combining the latter with the well-known expression for noise factor of a crystal-mixer superhet the sensitivity formula is Eq (26). The optimum circuit parameters are listed in Table 1 against δ and y , two of the dimensionless variables. Table 2 lists optimum values, including noise factors, of circuits using six different kinds of triode. One result (0.6 °K) is quoted for a pentode, type 6Zh9P. Measurements made by V.V. Khrulev on the 6S15P triode agree well with the theory. The author thanks I.L. Bershteyn and V.S. Troitskiy for advice. There are 2 figures, 2 tables and 2 Soviet references.

ASSOCIATION: Nauchno-issledovatel'skiy radiofizicheskiy institut pri Gor'kovskom universitete (Radio-physics Scientific Research Institute of Gor'kiy University)

SUBMITTED: May 25, 1959

Card 3/3

68644

S/141/59/002/05/005/026
E041/E321

Optimum Parameters of a Radiometer

is Eq (8). Since in a wide-band amplifier the minimum noise factor may be 25-30% less than the average value, this change is reflected in the sensitivity being correspondingly improved. For the sake of definiteness a post-detection time constant of one second is assumed and the sensitivity is thus Eq (11). For example, when $N = 25$, $B = 10$ Mc/s, the minimum detectable change in temperature is 2.4 °K. It has so far been assumed that the variation of noise factor with frequency is independent of the band shape. This is generally not true. The input circuit of Figure 1 is then considered and the sensitivity, Eq (16) is only 10% worse than the optimum value. If it is supposed that the bandwidth of a superhet receiver is determined by the first high-frequency stage, the next topic is the relationship between N_{min} and B to give best sensitivity. Figure 2 shows the first two stages of a typical receiver. The differential noise factor is Eq (17) and the minimum value, in dimensionless terms, is Eq (22).

Card2/3

S/141/59/002/05/005/026
E041/E321

24,3300

AUTHOR: Malakhov, A.N.

TITLE: Optimum Parameters of a Radiometer 25

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Radiofizika, 1959, Vol 2, Nr 5, pp 703 - 710 (USSR)

ABSTRACT: The expression of Eq (1) for the sensitivity of a modulated or compensated radiometer is valid only for the case when the spectral density of the amplifier noise, referred to the input, is uniform over the amplifier bandwidth. The distribution is, in practice, non-uniform and instead of the average noise factor N, the differential or "single-frequency" parameter N_f must be used. The modified sensitivity formula is Eq (4). The question now arises as to what shape of high-frequency passband will give the minimum detectable change in source temperature. This is a straightforward variational problem and the result is a response curve described by Eq (5). The physical meaning of the latter is that the frequency characteristic compensates for the variation in noise factor across the band. The optimum sensitivity, in terms of minimum noise factor,

Card1/3

05477

SOV/141-2-2-2/22

Observations of the Annular Solar Eclipse of April 19, 1959, on Wavelengths of 1.63, 3.2 and 10 cm

shortest wavelength the annulus contributes 4.5% of the intensity of the uneclipsed sun. The effective radius of the "radio-sun" is also estimated as about 4% (depending on wavelength) greater than the optical radius. The deduced values of various constants are in Table 1. The AS.PR of China are thanked as are also Chuang Li-hsin, Hsü Yüan, Li Chi-wen. The Ac.Sc.USSR are thanked, also A.P. Molchanov, B.M. Budkin, P.P. Lugovenko and A.A. Mel'nikov. There are 2 figures, 1 table and 2 Soviet references.

ASSOCIATION: Issledovatel'skiy radiofizicheskiy institut pri Gor'kovskom universitete (Radiophysics Research Institute of Gor'kiy University)

SUBMITTED: December 9, 1958

Card 3/3

05477
SOV/141-2-2-2/22

Observations of the Annular Solar Eclipse of April 19, 1959, on Wavelengths of 1.63, 3.2 and 10 cm

temperature of the uneclipsed sun. The values of the latter were 9 000 ^{o}K (1.63 cm), 21 000 ^{o}K (3.2 cm), 100 000 ^{o}K (10 cm). The vertical lines on the diagram represent the instants of disc "contact" (4 in number) and the occultation of certain well-known spots Nrs 188 and 186. A number of peculiarities may be noted. Between $2^h\ 0.3^m$ and $2^h\ 15^m$ and between $3^h\ 47^m$ and $3^h\ 58^m$ there is an increase in intensity over what might be expected. Figure 2 shows a synoptic chart of the sun. If the Nr 188 group of spots measures 3' x 1' the effective temperature (5.10^4 ^{o}K at 1.63 cm) and height 0.04 R at 10 cm) may be estimated. The curves for 3.2 cm and 10 cm in Figure 1 are asymmetrical. This may be explained as due to a wedge-shaped equatorial region which increases in brightness towards the eastern limb of the sun. The longer wavelength curves also show a small "hump" in the trough. This is due to "limb brightening" and it is possible to estimate its amount - e.g. at the

Card2/3

05477

SOV/141-2-2-2/22

AUTHORS: Tu Leng-yao, Malakhov, A.N., Plechkov, V.M. Razin, V.A. Rakhlin, V.L. Stankevich, K.S. Strezhneva, K.M. T'ang Shou-p'o, Troitskiy, V.S. Khrulev, V.V. and Tseytlin, N.M.

TITLE: Observations of the Annular Solar Eclipse of April 19, 1958 on Wavelengths of 1.63, 3.2 and 10 cm

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Radiofizika, 1959, Vol 2, Nr 2, pp 154 - 158 (USSR)

ABSTRACT: The report of a joint Soviet-Chinese expedition to Ling-sui ($\varphi = 18°30'32"$, $l = 110°01'12"$) on the island of Hai-nan. The aerials used parabolic reflectors of diameters 1 m at the shorter wavelengths and 1.5 m at the longest. The fluctuations in the threshold of sensitivity were similarly 4°, 5° and 4°. The electrical axes of the aerials were parallel to one another. The absolute accuracy of intensity measurement was ± 15% at the longer wavelengths and ± 20% at the shortest. The relative accuracy, assuming an averaging period of 1 min, was 2-3%. The results are shown in Figure 1 as measurements of effective temperature expressed as a percentage of the

Card1/3

MALAKHOV, A. N.

А. М. Бродский, А. И. Ахиезер, В. И. Магга, А. П. Сенько

Образцовая калориметрическая установка для поверки измерителей малой мощности в диапазоне 0,75—1,6 см.

А. Д. Селивановский,
Н. А. Югов,
В. И. Красноярцева,
А. Я. Дурасова

Пленочные болометры для измерения мощности СВЧ.

А. Н. Малахов

Оптимальные параметры радиометра.

Н. Б. Михайлова

О корреляционном измерителе малых сигналов в диапазоне 2—35 *Мгц*.

В. С. Кузнецов

Метод калибровки и поверки измерителей напряженности поля в диапазоне от 12 *кгц* до 25 *Мгц*.

10 июня

(с 18 до 22 часов)

Г. Д. Бурдун,
Е. Б. Зельцман,
В. Е. Поздняков

Метод точного измерения параметров диэлектриков в миллиметровом диапазоне волн.

И. Р. Гейлер, В. И. Юрьев

Устройство для исследования спектра излучения в миллиметровом и субмиллиметровом диапазоне.

Ю. Я. Юров,
В. И. Виноградов

Измерение диэлектрической проницаемости стержневых образцов в диапазоне СВЧ.

Л. И. Брянский

Точное измерение КСВН с помощью фазовращателя и зондовой головки.

11 июня

(с 10 до 16 часов)

Л. И. Брянский

Методы поверки волноводных измерительных линий в диапазоне 0,75—10,0 *см*.

report submitted for the Centennial Meeting of the Scientific Technological Society of Radio Engineering and Electrical Communications im. A. S. Popov (VNORIE), Moscow, 8-12 June, 1959 years. Ya. M. Sorin spoke about "The Way From the Oscillating Crystal Receiver to the Transistor". B. L. Lebedev gave a survey of the work in the field of radio measuring technique. L. L. Myasnikov spoke about the work of the scientists of Gor'kiy in the field of radiophysics. The scientific work in the "Scientific Research Institute of Radiophysics" re-organized in 1956 (NIRFI) concentrates on three main lines of development: radio astronomy, electronics, statistical radiophysics and radio spectroscopy. In October 1958 a conference on statistical radiophysics will be convened in Gor'kiy.- A. N. Malakhov spoke about the work of the radio-astronomical expedition of the NIRFI to Southern China. It was a Chinese-Soviet expedition in which also professors and collaborators of the Peking (Pekin) and Canton (Kanton) universities as well as of the Institute of Radio-Engineering and Electronics of the Academy of Sciences of China took part. Ya. N. Nikolayev spoke about "The Gor'kiy School of the Theory of Oscillations". D. V. Ageyev spoke about the theme "Subjects Investigated by the Scientific Collaborators of the Faculty of Radio Engineering of the Gor'kiy Polytechnical Institute". Ye. A. Popova-K'yandskaya spoke about the work carried out by A. S. Popov at Nizhniy-Novgorod.

MALAKHOV, A.N.

p. 2

AUTHOR: None Given SOV/108-13-8-11/12

TITLE: [Transactions of the] Conference on the Occasion of the 40th Anniversary of the Nizhniy-Novgorod Radio Laboratory imeni V.I. Lenin (Konferentsiya, posvyashchennaya sorokaletiyu Nizhegorodskoy radiolaboratorii imeni V.I. Lenina)

PERIODICAL: Radiotekhnika, 1958, Vol. 13, Nr 8, pp. 71-79 (USSR)

ABSTRACT: From May 22-24, a conference took place at Gorkiy which had been organized by the Gor'kiy Branch of the Scientific and Technical Society for Radio Engineering and Electric Telecommunication Service imeni A. S. Popov. The conference was attended by: B. A. Ostroumov, A. M. Kugushev, A. A. Pistol'kors, N. A. Nikitin, G. A. Ostroumov, V. P. Yakovlev, V. K. Ge, N. N. Pal'mov, F. A. Lbov, A. S. Nikolayenko, I. P. Koterov, S. I. Morugina, Ye. S. Sorokin et al. as well as by a group of former collaborators of the Tver' radiostation. A. M. Kugushev spoke about "The Nizhniy-Novgorod Radio Laboratory imeni V. I. Lenin, L. A. Kopytin on the development of the technique in radio engineering, the establishment of radio communication facilities and television apparatus. A. I. Shokin spoke about the development of the Soviet radio-engineering industry during the past 40

Card ~~1/4~~ 1/2

SOV-109-3-4-13/28

Resistance Fluctuation of Semiconductor Detectors

function of the polarising current for several rectifiers. From this it is seen that though the resistance fluctuation is a function of the current, it is difficult to express this dependence analytically. There are 5 figures and 15 references, 8 of them being English, 4 French, 1 Italian, 1 Soviet and 1 German.

SUBMITTED: December 12, 1956

1. Dectors (RF)--Electrical properties 2. Detectors (RF)--Analysis 3. Noise (Radio)--Analysis 4. Semiconductors--Applications 5. Spectrum analyzers--Applications 6. Spectrum analyzers--Equipment

Card 3/3

Resistance Fluctuation of Semiconductor Detectors

and a thermocouple followed by a galvanometer. The spectrum analyser was used to measure a quantity $\overline{dU_f^2}$ from which it is possible to determine $\overline{\delta U_f^2} = \overline{dU_f^2}/U^2$ and the square resistance fluctuation:

$$\overline{\delta R_f^2} = \left(\frac{p + r}{R}\right)^2 \overline{\delta U_f^2} \qquad (5)$$

where $p = \partial V/\partial I$ is the differential resistance of the rectifier, and R is the static value of the rectifier resistance. The experimental results are shown in Figs.3, 4 and 5. Fig.3 shows three curves of $\overline{\delta R_f^2}$ as a function of f for three different rectifiers taken at currents of 1, 2 and 2 mA. From these curves it follows that the spectral density does obey $f^{-\alpha}$ law and that α is approximately equal to 0.75. Figs. 4 and 5 show $\overline{\delta R_f^2}$ as a

SOV-109-3-4-13/28

AUTHOR: Malakhov, A. N.

TITLE: Resistance Fluctuation of Semiconductor Detectors (Flyuktuatsii soprotivleniya poluprovodnikovykh detektorov)

PERIODICAL: Radiotekhnika i Elektronika, 1958, Vol 3, Nr 4, pp 547-551 (USSR)

ABSTRACT: It has been observed by various authors (Refs.1, 4, 5 and 8) that the spectral density of the so-called residual noise in semiconductor rectifiers is proportional to $f^{-\alpha}$, where f is frequency and α is a constant near to unity. It has also been found that the spectral density is proportional to I^{β}, where I is the polarising current flowing through the rectifier and β is a constant. An attempt was made in the work described to investigate the residual (non-Gaussian) noise experimentally. It was thought that the noise can be represented as the resistance fluctuation of a rectifier rather than the current or voltage fluctuation. The circuit employed for the measurements (see Fig.1) consisted of a battery supply source, E, a wire-wound resistance r connected in series with the investigated rectifier, and a spectrum analyser. The spectrum analyser consisted of two low frequency amplifiers, a balancedmixer, a local oscillator, a tuning-fork filter, a resonant amplifier

MALAKHOV, A. N. (NIRFI, Gor'kiy)

"The Spectral Line Width of Oscillators and the Parameter Fluctuation."

Here, a self-oscillator network was considered, which was described by a n-th ord order differential equation. The author showed that the enlargement of the oscillator lines was caused by slow (compared to the oscillation period) and fast parameter fluctuations, whose spectrum is located near the frequency multiples to the self-oscillation frequency.

"Flicker Noise in Modern Vacuum Tubes, Semiconductors and other Elements."

with A. I. Chikin, "The Fluctuation of the Gain Factor in Semiconductor Amplifiers."

reports presented at the 1st All-Union Conference on Statistical Radio Physics, Gor'kiy, 13-18 October 1958. (Izv. vyssh ucheb zaved-Radiotekh., vol. 2, No. 1, pp 121-127) COMPLETE card under SIFOROV, V. I.)

MALAKHOV, A.N.; FAYN, V.M.

Spectrum-line width of a quantum oscillator on three levels. Izv. vys. ucheb. zav.; radiofiz. 1 no.5/6:66-74 '58. (MIRA 12:8)

1. Issledovatel'skiy radiofizicheskiy institut pri Gor'kovskom universitete.
(Oscillators, Electric)

SOV-120-58-1-19/43

A Highly Sensitive Spectral Analyzer of Low Frequency Electrical Noises.

Fig.7. There are 8 figures, no tables, 1 Soviet reference, 4 English and 1 Swiss.

ASSOCIATION: Nauchno-issledovatel'skiy radiofizicheskiy institut pri Gor'kovskom gosudarstvennom universitete (Scientific Research Radiophysical Institute of the Gor'kiy State University.

SUBMITTED: May 9, 1957.

1. Audiofrequency spectrum analyzers--Design 2. Audiofrequency spectrum analyzers--Applications

Card 2/2

SOV-120-58-1-19/43

AUTHOR: Malakhov, A. N.

TITLE: A Highly Sensitive Spectral Analyzer of Low Frequency Electrical Noises (Vysokochuvstvitel'nyy spektral'nyy analizator nizkochastotnykh elektricheskikh shumov)

PERIODICAL: Pribory i Tekhnika Eksperimenta, 1958, Nr 1, pp 79-82 (USSR)

ABSTRACT: A description is given of a relatively simple spectral analyzer which can be used to measure the noise spectrum in the range 1-300 c/s and which has a sensitivity of about $10^{-16}v^2$/c/s. The analyzer is based on the heterodyne principle and has a band width of about 1 c/s. Circuits for the input amplifiers, mixers, output amplifiers, etc. are given in Figs. 2 to 6. The sensitivity of the analyzer is determined by the noise level of the first input amplifier. As an example, the spectrum of the low frequency fluctuation of a gas discharge in a neon lamp is shown in

Card 1/2

06465
SOV/141-1-5-6-9/28

The Spectral Line Width of a 3-level Quantum Oscillator

ASSOCIATION: Issledovatel'skiy radiofizicheskiy institut pri Gor'kovskom universitete (Radiophysics Research Institute of Gor'kiy University)

SUBMITTED: June 4, 1958

Card 3/3

06465
SOV/141-1-5-6-9/28

The Spectral Line Width of a 3-level Quantum Oscillator

solved as an algebraic equation (4), which upon substitution of the changed variables immediately following it becomes Eq (5). The solutions are plotted in Figures 1-3, the permittivity being found from Eq (6). If all noise and fluctuations are absent, the amplitude and frequency of the radiation are finite vector quantities. If all disturbances are present, then Eq (18) describes the character of the radiation. If the spectral densities of the disturbances are known, Eqs (24) and (25) are expressions for the "natural" and "technical" line widths, respectively. If reasonable practical values for both gaseous and paramagnetic solid systems are substituted in these expressions it is seen that the technical line width is comparable with that of the pump source; this does not exclude the possibility that more careful examination of Eqs (22) and (23) would suggest an operating regime to give a smaller line width.
There are 3 figures and 6 references, of which 4 are Soviet and 2 English.

Card2/3

06465
SOV/141-1-5-6-9/28

AUTHORS: Malakhov, A.N. and Fayn, V.M.

TITLE: The Spectral Line Width of a 3-level Quantum Oscillator

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Radiofizika, 1958, Vol 1, Nr 5-6, pp 66 - 74 (USSR)

ABSTRACT: Quantum oscillators consist of systems with discrete energy levels, such as molecular gases, paramagnetic compounds, etc., associated with a resonator. The behaviour of the latter may be described by Eq (1) in terms of electric-field strength E , polarisation P and the resonator quality and frequency Q and ω_0 , respectively. The radiations produced suffer from three disturbing influences: thermal noise in the resonator and fluctuations in the amplitude and frequency on the pumping field. The spectral line width due to the first of these is called the "natural" line width and that due to the second and third is the "technical" line width. The effective line width is the sum of these two quantities. The resonator equation for complex field is Eq (2) and for complex permittivity is Eq (3). The latter may be

Card1/3

109-10-10/19

The Width of the Spectral Line of an Oscillator having a Fluctuating Frequency.

2 of which are Slavic.

ASSOCIATION: NIRFI of the Gor'kiy University (NIRFI pri Gor'kovskom Universitete)

SUBMITTED: April 12, 1957.

AVAILABLE: Library of Congress.

Card 3/3

109-10-10/19

The Width of the Spectral Line of an Oscillator having a Fluctuating Frequency.

fluctuations. On the basis of these equations, it can be shown that the width of the spectral line ΔF is given by Eq.(7). This permits the determination of ΔF for a number of cases, though general solution of the problem appears to be difficult. Thus, for $\mu \gg 1$ (where $\mu = \tau_0^2$) :

$$\Delta F = \sqrt{\frac{S}{2\pi}} \qquad (11)$$

while for $\mu \ll 1$:

$$\Delta F = w_0/8 \quad , \qquad (13)$$

while for a spectral distribution of the type given by Eq.(2), it is in the form as expressed by Eqs.(16) or (20); in the above equations, S is the squared average of the frequency deviation and p is the width of the spectrum which is equal to the reciprocal of the correlation time τ_0 of the

Card2/3 frequency fluctuations. There are 2 figures and 3 references,

Malakhov, A.N.

AUTHOR: Malakhov, A.N. 109-10-10/19

TITLE: The Width of the Spectral Line of an Oscillator having a Fluctuating Frequency (O shirine spektral'noy linii generatora pri flyuktuatsiyakh ego chastoty)

PERIODICAL: Radiotekhnika i Elektronika, 1957, Vol.II, No.10, pp. 1295 - 1297 (USSR).

ABSTRACT: The contour of the spectral line of a system whose frequency is subject to fluctuations expressed by (see Ref.3):

$$W(\omega) = \frac{A^2}{2\pi} \int_0^{\infty} \cos (\omega - \omega_0) \tau e^{-\frac{1}{2} \chi (\tau)} d\tau \qquad (4)$$

where A is the oscillation amplitude, ω_0 is the average frequency and:

$$\chi (\tau) = 2 \int_0^{\infty} (\tau - \xi) \Phi_{\nu} (\xi) d\xi \qquad (5)$$

Card1/3 where $\Phi_{\nu}(\tau)$ is the correlation function of the frequency

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001031700031-6

Fluctuation of Gain in Electron Tube Amplifiers. 109-4-9/20

batteries, and $\beta = 10^{-13}$ to 10^{-15}, $\alpha = 1.4$ to 2.4 for storage batteries. If the supply voltage fluctuations are coherent (as is normally the case) their effect on the gain can be represented by a spectral density function:

$$\frac{N^2}{9} \overline{\delta U_f^2}/(1 + sZ_k)^2 < \overline{\delta K_f^2} < \frac{N^2}{4} \overline{\delta U_f^2}/(1 + sZ_k)^2 . \qquad (43)$$

Experimental values of the spectral density functions $\overline{\delta R_f^2}$, δi_f^2 and δU_f^2 are given for frequencies ranging from 0.5 to 120 c/s (see Figs. 4, 6, 8, 10). The paper is very well-documented in that it contains 19 references, 8 of which are Slavic. There are 11 figures including 1 circuit diagram.

SUBMITTED: May 6, 1956.

AVAILABLE: Library of Congress.

Card 4/4

Gain in Electron Tube Amplifiers.

(2

...tral density function:

$$\overline{\sigma i_f^2} = Af^{-\alpha} \qquad (31)$$

...h $A = 1.5 \times 10^{-12}$, $\alpha = 1.4$ for the pentodes 6Ж3П, ... $= 2 \times 10^{-12}$, $\alpha \times 1.38$ for the tubes 6K7. Influence of ...licker noise on the gain of an amplifier consisting of N identical stages is given by:

$$\overline{\sigma K_f^2} = \frac{4N}{9}\left[\left(1 + \frac{m+1}{2m} R^1 S\right) / \left(1 + SZ_k\right)\right]^2 \overline{\sigma_f^2} \qquad (10)$$

where $R^1 = R_K + D\left(\frac{R_e}{m+1} + R_p\right)$.

Fluctuations of the supply voltages can be represented by a spectral density function:

$$\overline{\sigma U_f^2} = b f^{-\alpha} \qquad (33)$$

where b is of the order of $10^{-6} \div 10^{-7}$ and $\alpha = 2.2$ for ... 3/4 mains operated rectifiers; $b = 10^{-10}$, $\alpha = 1.4$ for dry

$$\overline{\delta R_f^2} = Bf^{-\alpha} \qquad (4)$$

For the resistances employed by the author the density was:

$$\delta R_f^2 = 1.5 \times 10^{-11} f^{-1.2} \qquad (6)$$

It is shown that the effect of the resistance fluctuation on the gain of an N-stage amplifier can be represented by a spectral density function:

$$\overline{\delta K_f^2} = N \left[1 + \left(\frac{m+1}{3m} rS \right)^2 / (1 + SZ_k)^2 \right] \delta R_f^2 \qquad (18)$$

where S is the slope of a tube, m is the anode-to-screen currents ratio and:

$$r = D^2 R_p^2 + D^2 R_e^2 / (m + 1)^2$$

where D is the reciprocal of the amplification coefficient of the screen circuit. The flicker effect can be represented

MALAKHOV, A.N.

AUTHOR: Malakhov, A.N. 109-4-9/20

TITLE: Fluctuation of Gain in Electron Tube Amplifiers. (Flyukt-uatsii koeffitsiyenta usileniya lampovykh usiliteley)

PERIODICAL: Radiotekhnika i Elektronika, 1957, Vol.2, No.4, pp. 438 - 449 (USSR)

ABSTRACT: The gain of electron tube amplifiers is subject to slow fluctuations which are primarily caused by the low-frequency noise current in non-wire resistors, the flicker noise in the tubes and the variations of the supply sources (rectifiers operating from the mains, dry batteries and secondary batteries). Effect of the above three factors on the gain was investigated analytically and experimentally. Two experimental amplifiers were used; one of these consisted of 8 identical stages employing pentodes, type 6Ж3П, while the other had 10 stages with pentodes, type 6K7. Each stage had a self-biassing cathode impedance Z_k (a resistance R_k in parallel with a capacitance C_k), a screen resistance R_e, and anode-resistance R_a and a decoupling resistance R_p. Spectral density of the resistance fluctuation is in the form [Refs. 8-11]:

Card 1/4

MALAKHOV, A.N.

Category : USSR/Radiophysics - Statistical Phenomena in Radiophysics I-3

Abs Jour : Ref Zhur - Fizika, No 2, 1957, No 4428

Author : Malakhov, A.N.
Inst : Ryazan' Radiotechnical Institute, USSR

Title : Concerning the Shape of the Spectral Line of a Generator of Fluctuating Frequency.

Orig Pub : Zh. eksperim. i teor. fiziki, 1956, 30, No 5, 884-888

Abstract : For a generator, the frequency of which fluctuates about an average value ω_0, an analysis is made of the behavior of the spectral density S(ω) near $\omega = \omega_0$. A general equation is obtained and two limiting cases are considered: (1) $\Delta\omega^2 \tau_0^2 \gg 1$ ($\Delta\omega^2$ and τ_0 are respectively the dispersion and the frequency-correlation time), where the line broadening is of the same form as the Doppler broadening; (2) $\Delta\omega^2 \tau_0^2 \ll 1$, in which case S (ω) agrees "in form" with the known expression for the spectral density of the "natural" line broadening of the oscillator. A generator with a correlation coefficient R (τ) = $e^{-\alpha|\tau|}$ is analyzed as an example. Bibliography, 9 titles.

Card : 1/1

Category : USSR/Radiophysics - Statistical Phenomena in Radiophysics I-3

Abs Jour : Ref Zhur - Fizika, No 2, 1957, No 4429

8) M_{III} -- Third mixer

9) H_{III} -- Third heterodyne (500 cycles)

10) A_{III} -- Third amplifier

11) T -- Thermocouple

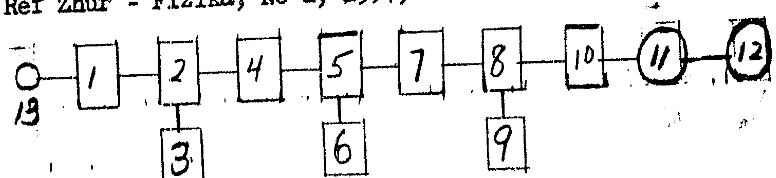
12) Galv. -- Galvanometer

13) Input

Card : 3/3

Category : USSR/Radiophysics - Statistical Phenomena in Radiophysics

Abs Jour : Ref Zhur - Fizika, No 2, 1957, No 4429



1) A_I -- First amplifier

2) M_I -- First mixer

3) H_I -- First heterodyne (800 cycles)

4) A_{II} -- Second amplifier

5) M_{II} -- Second mixer

6) H_{II} -- Second heterodyne (800-930 cycles)

7) DCF -- DC filter with approximate bandwidth of 0.2 cycles

Card : 2/3

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001031700031-6

MALAKHOV, A.N.

Category : USSR/Radiophysics - Statistical Phenomena in Radiophysics I-3

Abs Jour : Ref Zhur - Fizika, No 2, 1957, No 4429

Author : Malakhov, A.N., Dubrovin, V.Ye.

Title : Certain Investigation of the Flicker Effect.

Orig Pub : Zh. tekhn. fiziki, 1956, 26, No 7, 1451-1455

Abstract : A study was made of tube-current fluctuations in the 0.5 -- 120 cycle range, where the noise caused by the flicker effect exceeds the shot or the thermal noise. A special noise analyzer, based on a triple frequency conversion circuit, was used for the measurements. The maximum sensitivity of the analyzer, the block diagram of which is shown in the drawing, is 10^{-16} v^2/cycle. The flicker intensity vs. anode voltage curves displayed minima and maxima, alternating approximately every 14 volts, caused, in the opinion of the authors, to the ionization of residual gases -- CO_2, CO, N, H_2O -- which have ionization potentials from 13.2 to 14.5 volts. The relative magnitude of the fluctuations $\Delta\ j^2/j^2$ ranges from 10^{-8} to 10^{-14}. The cathode temperature does not affect the form of the spectrum. Bibliography, 5 titles.

Card : 1/3

MALAKHOV, A.N.

FD-3220

USSR/Engineering - Electrical

Card 1/1 Pub 41-1/22

Author : Malakhov, A. N., Ryazan'

Title : Stabilization of irregular fluctuations of voltage with a ferroresonant voltage stabilizer

Periodical : Izv. AN SSSR, Otd. Tekh. Nauk (7), 3-8, Jul 1955

Abstract : Presents equations of motion, equations for fluctuations, an experimental determination of the coefficient of transmission, and the spectrum of the amplitude fluctuations of a stabilized voltage. Concludes that a ferroresonant voltage stabilizer can decrease only the very slowest amplitude fluctuations of a supplied voltage, and may even increase the more rapid fluctuations. Four graphs; formulae. Three references, all USSR.

Institution :

Submitted : 2 April 1955

MALAKHOV, A. N.

Malakhov, A. N. -- "Fluctuations of the Parameters of Certain Oscillating Systems." Cand Phys-Math Sci, Gor'kiy State U, Gor'kiy 1953. (Referativnyy Zhurnal--Fizika, January 54)

SO: SUM 168 22 July 1954

SHINLOV, Ye.I.; MALAKHOV, A.M.

Increasing the efficiency of hydraulic accumulators of butt welding machines. Avtom. svar. 18 no.5:51-52 My '65.
(MIRA 18:6)

1. Institut elektrosvarki im. Ye.O. Patona AN UkrSSR.

VOLKOV, Vladimir Fedorovich; MALAKHOV, Aleksandr Kirillovich;
RYGALIN, A.G., red.; KHLOPOVA, L.K., tekhn. red.

[Wages on state farms]Oplata truda v sovkhozakh. Moskva, Gosiurizdat, 1962. 137 p. (MIRA 16:2)
(Agricultural wages)

KLIMOV, N.M., doktor biologicheskikh nauk; MALAKHOV, A.G., kand.veterinarnykh nauk; ISAYENKO, Ye.P., mladshiy nauchnyy sotrudnik

Purification of hog cholera virus by means of electrophoresis. Trudy VIEV 22:195-201 '59. (MIRA 13:10)
(Hog cholera) (Electrophoresis)

KLIMOV, N.M., doktor biologicheskikh nauk; MALAKHOV, A.G., kand.veterinarnykh nauk

Purification of foot-and-mouth disease virus by means of electrophoresis. Trudy VIEV 22:189-194 '59. (MIRA 13:10)
(Foot-and-mouth disease) (Electrophoresis)

MALAKHOV, A. G. Cand Vet Sci -- (diss) "Electrophoretic studies of blood ~~serum~~ proteins ~~of~~ in large-horn cattle during experimental stomatitis aphthosa." Mos, 1957. 16 pp 20 cm. (All-Union Inst of Experimental Vet Medicine VASKhNIL), 110 copies (KL, 24-57, 120)

MALAKHOV, A.F.; KARAYBOG, Ye.V.

Investigating the bleaching property of clays (opoka) of certain fields in Volgograd province. Nefteper. i neftelhim. no.2:10-12 '64. (MIRA 17:8)

1. Volgogradskiy nauchno-issledovatel'skiy institut neftyanoy i gazovoy promyshlennosti.

BEREZYUK, F.A.; MALAKHOV, A.F.

Mill for grinding silica gel. Nefteper. i neftekhim. no.12: 23-24 '63. (MIRA 17:4)

1. Volgogradskiy nauchno-issledovatel'skiy institut neftyanoy i gazovoy promyshlennosti.

MALAKHOV, A.F.; SELEMENEV, A.I.

Remodeling a clay grinder. Mash. i neft. obor. no.1:37-38 '65. (MIRA 18:4)

1. Nauchno-issledovatel'skiy institut neftyanoy i gazovoy promyshlennosti i Neftepereabatyvayushchiy zavod. g. Volgograda.

MALAKHOV, A.A.; PIL'SHCHIKOV, B.I.; CHERNYAYEV, A.M.

New data on the age of the Samarskoye and Ulutau series in the Urals. Dokl. AN SSSR 161 no.1:183-186 Mr '65.

(MIRA 18:3)

1. Sverdlovskiy gornyy institut im. V.V. Vakhrusheva. Submitted August 14, 1964.

UKLONSKIY, A.S., akademik, otv. red.; BADALOV, S.T., doktor geol.-min. nauk, red.; GOLOVANOV, I.M., kand. geol.-miner. nauk, red.; ISMAILOV, M.I., kand. geol.-miner. nauk, red.; MALAKHOV, A.A., doktor geol.-miner. nauk, red.; SHAVLO, S.G., doktor geol.-miner. nauk, red.; ASTAKHOV, A.N., red.

[Problems of mineralogy and geochemistry] Voprosy mineralogii i geokhimii. Tashkent, Izd-vo Nauka, Uzbek.SSR, 1964. 278 p. (MIRA 17:8)

1. Akademiya nauk Uzbekskoy SSR, Tashkent. Institut geologii i geofiziki. 2. Akademiya nauk Uzb.SSR (for Uklonskiy).

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001031700031-6

MALAKHOV, Anatoliy Alekseyevich, prof., doktor geol.-miner. nauk; LIVANOV, A., red.; MIKHAYLOVSKAYA, N., tekhn. red.

[Under the mantle] Pod pokrovom mantii. Moskva, Molodaia gvardiia, 1964. 207 p. (MIRA 17:3)

MALAKHOV, A.A.; ZHELOBOV, P.P.

Methods for the plotting of metallogenetic maps on the basis of the tectonic scheme of the Urals. Trudy Sver. gor. inst. no.43:42-50 '63. (MIRA 18:7)

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001031700031-6

MALAKHOV, A.A.

Basic problems of the tectonics of the Urals. Trudy Sver. gor. inst. no.43:5-11 '63. (MIRA 18:7)

MALAKHOV, A.A.

Effect of enclosing rocks and the metallogenic factor on the concentration of cadmium in sulfides of the Karamazar Mountains. Zap.Uz.otd. Vses.min.ob-va no.15:40-60 '63. (MIRA 17:10)

MALAKHOV, A., prof.

Password to the subterranean regions. IUn. nat. no.4:26-27
Ap '63. (MIRA 16:7)
(Geological surveys)

KHALEVIN, N.I.; MALAKHOV, A.A.

Regional seismic studies conducted in the Urals in connection with ~~extra-~~deep drilling. Izv. AN SSSR. Ser.geofiz. no.1:49-57 Ja '63. (MIRA 16:2)

1. Institut geofiziki Ural'skogo filiala AN SSSR i Sverdlovskiy gornyy institut.
(Ural Mountains—Seismic prospecting)

MALAKHOV, Anatoliy Alekseyevich; LIVANOV, A., red.; MIKHAYLOVSKAYA, N., tekhn. red.

[The hundred occupations of a geologist] Sto professii geologa. Moskva, Molodaia gvardiia, 1963. 189 p. (MIRA 16:5)

(Geology)

MALAKHOV, A.A.; ZHELOBOV, P.P.

Subsurface geology of the Central Urals. Dokl. AN SSSR 146 no.1:179-182 S '62. (MIRA 15:9)

1. Predstavleno akademikom D.I. Shcherbakovym.
(Ural Mountains—Geology, Structural)

MALAKHOV, A.A.

Using the method of relative contents of admixture elements in multicomponent minerals in metallogenetic, and minero-geochemical studies (triad Fe-Cd-Mn). Zap. Uz. otd. Vses. min. ob-va no.14:35-56 '62. (MIRA 16:7)

(Trace elements)

MALAKHOV, A.A.

Follow-up to the comments by S.T.Badalov on A.A.Malakhov's article "Mineralogical and geochemical studies and field practice." Uch. zap. SAIGIMSa no.7:289 '62. (MIRA 17:2)

1. Institut geologii AN UzSSR.

MALAKHOV, A.A.

Structure, magmatic activity and hypogene metallogeny of the Balkan-Anatolian section of the Alpine geosyncline. Zakonom. razm. polez. iskop. 5:283-303 '62. (MIRA 15:12)

1. Sredne-Aziatskiy nauchno-issledovatel'skiy institut geologii i mineral'nogo Syr'ya.
(Balkan Peninsula—Ore deposits) (Anatolia—Ore deposits)

MALAKHOV, A., prof.

Mirages of Turgay. Nauka i zhyttia 11 no.3:58-61 Mr '62.
(MIRA 15:8)
(Paleontology)

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001031700031-6

MALAKHOV, Anatoliy Alekseyevich, prof.; SHAGIROVA, I.M., red.; MURASHOVA, V.A., tekhn. red.

[Short course in general geology]Kratkii kurs obshchei geologii. Moskva, Gos.izd-vo "Vysshaia shkola," 1962. 241 p. (MIRA 15:9)
(Geology)

CHERNOUSOV, Yakov Mikhaylovich, prof.; doktor geol.-miner. nauk; MALAKHOV, A.A., prof., doktor geol.-miner. nauk, retsenzent; KOLOSNITSYN, V., red.; GOLOBOKOVA, L., tekhn. red.

[Academician A.P.Karpinskii] Akademik A.P.Karpinskii. Sverdlovsk, Sverdlovskoe knizhnoe izd-vo, 1962. 105 p. (MIRA 16:7)

(Karpinskii, Aleksandr Petrovich, 1846-1936)

MALAKHOV, A.A., prof.; FIL'SHCHIKOV, B.I., inzh.; ZASYPKIN, V.Ye., starshiy prepodavatel'

Study of regional fracturing of Ural rocks. Izv. vys. ucheb. zav.; gor. zhur. no.11:10-14 '61. (MIRA 15:1)

1. Sverdlovskiy gornyy institut imeni V.V.Vakhrusheva. Rekomendovana kafedroy boshchey geologii.

(Ural Mountains--Joints (Geology))

MALAKHOVA, Nadezhda Petrovna; MALAKHOV, Anatoliy Alekseyevich;
PRONIN, A.A., doktor geol.-min.nauk, otv.red.;
SEREDKINA, N.F., tekhn.red.

[Moskovian and Gzhelian stages of the Central Urals]
Moskovskii i gzhel'skii iarusy srednego Urala. Sverdlovsk.
1961. 84 p. (Akademiia nauk SSSR. Ural'skii filial,
Sverdlovsk. Gorno-geologicheskii institut. Trudy, no.59).
(MIRA 15:11)
(Ural Mountains--Geology, Stratigraphic)

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001031700031-6

MALAKHOV, A.A.

Classification of metallogenetic objectives of the Mesozoic and Cenozoic folding. Uzb. geol. zhur. no.6:82-90 '60. (MIRA 14:1)

1. Sredneaziatskiy nauchno-issledovatel'skiy institut geologii i mineral'nogo syr'ya, Tashkent.
(Ore deposits—Classification)

MALAKHOV, A.A.

Metallogeny of Macedonia in the Vardar Valley portion. Uzb. geol. zhur. no.2:65-71 '60. (MIRA 13:10)

1. Sredneaziatskiy nauchno-issledovatel'skiy institut geologii i mineral'nogo syr'ya.
(Vardar Valley (Macedia)—Ore deposits)

MALAKHOV, A.A., prof., doktor geologo-mineralogicheskikh nauk; PAPULOV, G.N., kand.geologo-mineralogicheskikh nauk

Problems in the conservation of mineral resources of the Urals. Okhr. prir. na Urale no.1:33-36 '60. (MIRA 14:4)
(Ural Mountain region--Mines and mineral resources)

MALAKHOV, Anatoliy Alekseyevich, prof., doktor geologo-miner. nauk; KOLOSNITSYN, V., red.; SAKHYN', Yu., tekhn. red.

[Stories about rocks]Novelly o kamne. Sverdlovsk, Sverdlovskoe knizhnoe izd-vo, 1960. 210 p. (MIRA 15:8)

1. Sverdlovskiy gornyy institut (for Malakhov).
(Ural Mountains--Rocks)

MALAKHOV, A.A.

Sequence of the formation of igneous rocks in the Vardar Valley portion of Macedonia (Balkan Peninsula). Uzb.geol.zhur. no.5: 31-41 '59. (MIRA 13:5)

1. Sredneaziatskiy nauchno-issledovatel'skiy institut geologii i mineral'nogo syr'ya, Tashkent.
(Vardar Valley (Macedonia)--Rocks, Igneous)

MALAKHOV, A.A.

Characteristics of arsenopyrite-complex mineralization of the Myshikkol (Altyn-Topkan ore deposit in the Tajik S.S.R.). Uzb. geol. zhur. no.4:22-29 '59. (MIRA 13:1)

1. SAIGIMS.
(Altyn-Topkan region (Tajikistan)--Ore deposits))

BATALOV, A.B.; BAYMUKHAMEDOV, Kh.N.; GAR'KOVETS, V.G.; ISAMUKHAMEDOV, I.M.; KUCHUKOVA, M.S.; MALAKHOV, A.A.; MATSOKINA, T.M.; MIRKHODZHAYEV, I.M.; MUSIN, R.A.; PETROV, N.P.; TULYAGANOV, Kh.T.; KHAMRABAYEV, I.Kh.

Winner of the Lenin Prize. Uzb.geol.zhur. no.2:94-96 '59. (MIRA 12:8)
(Abdullaev, Khabib Mukhamedovich)

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001031700031-6

MALAKHOV, A.A., prof.; SOLOV'YEV, Yu.S., inzh.

Ural amphibole-asbestos. Izv.vys.ucheb.zav.; gor.zhur. no.11: 37-47 '58. (MIRA 12:8)

1. Sverdlovskiy gornyy institut (for Malakhov). 2. Ural'skoye geologoupravleniye (for Solov'yev).
(Ural Mountains--Amphibole) (Asbestos)

MALAKHOV, A.

GEOGRAPHY & GEOLOGY

Periodicals: CASOPIS PRO MINERALOGII A GEOLOGII Vol. 3, no. 4, 1958

MALAKHOV, A. The gradual origin of the hydrothermal deposits connected genetically with the formation of the plutonic in central Bohemia Tr. from the Russian. p. 411.

Monthly List of East European Accessions (EEAI) LC, Vol. 8, No. 5, May 1959, Unclass.

MALAKHOV, A.A.

ABDULLAYEV, Kh.M., akademik; ADELUNG, A.S.; VORONICH, V.A.; GOR'KOVOY, O.P.; KALABINA, M.G.; MALAKHOV, A.A.; MATSOKINA, T.M.; MIRKHODZHAYEV, I.M.; RADZHABOV, F.Sh.; TUMASHEVSKAYA, E.S., red.izd-va; GOR'KOVAYA, Z.P., tekhn.red.

[Principal features of magmatism and metallogeny in the Chatkal-Kurama mountain ranges] Osnovnye cherty magmatizma i metallogenii Chatkalo-Kuraminskikh gor. Pod obshchei red. Kh.M.Abdullaeva. Tashkent, Izd-vo Akad.nauk Uzbekskoi SSR, 1958. 288 p. (MIRA 11:7)

1. Akademiya nauk Uzbekskoy SSR (for Abdullayev)
(Chatkal Mountain Range--Mineralogy)
(Kurama Mountain Range--Mineralogy)

MALAKHOV, A.A.

In memory of FrantiŠek Slavik, active member of the Academy of Sciences of Czechoslovakia. Izv.AN SSSR.Ser.geol. 22 no.3:89-91 Mr '57. (MLRA 10:5)
(Slavik, Frantisek, 1876-1956)

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001031700031-6

MALAKHOV, A.A.

Example of the structural relation between complex mineralization and diabasic dikes (Pribram, Czechoslovakia). Izv. AN Uz. SSR. Ser. geol. no.3:69-73 '57. (MIRA 11:9)
(Czechoslovakia--Geology, Structural) (Mineralogy)

MALAKHOV, Anatoliy Alekseyevich; IVANOV, S.N., prof., retsenzent; POKROVSKAYA, I.M., prof., retsenzent; CHERNOUSOV, Ya.M., doktor geologo-mineral.nauk, retsenzent; ARTYUSHINA, V., red.

[Stone documents] Kamennye dokumenty. Sverdlovskoe knizhnoe izd-vo, 1957. 178 p. (MIRA 12:1)

(Geology)

MALAKHOV, Anatoliy Alekseyevich, doktor geol.-mineral. nauk, prof.; USPENSKAYA, N.V., redaktor; GUBIN, M.I., tekhnicheskiy redaktor.

[Geology and mineral resources of the Urals] Geologiia i poleznye iskopaemye Urala. Moskva, Izd-vo "Znanie," 1957. 28 p. (Vsesoiuznoe obshchestvo po rasprostraneniiu politicheskikh i nauchnykh znanii. Ser.8, no.32) (MIRA 10:11)
(Ural Mountain region--Geology) (Ural Mountain region--Mineralogy)

MALAKHOV, A.A.

The most recent tectonic movements in the central section of the Southern Urals. Trudy Sver.gor.inst. no.26:7-20 '56.
(Ural Mountains--Physical geography) (MIRA 10:3)

MALAKHOV, A. A.

USSR/Geology - Mapping

Sep/Oct 53

"Review of V. A. Aprodov's Book 'Geological Mapping,'" (Acad V. A. Obruchev, G. Ye. Ryabukin, and A. A. Malakhov, reviewers)

Iz Ak Nauk SSSR, Ser Geol, No 5, pp 141-145

Favorable review of Aprodov's book "Geologicheskoye Kartirovaniye," Gos Izd-vo geol lit-ry (State Publishing House of Geological Literature), Moscow, 1952, 373 pp, 152 illustrations, 8 maps. The book is recommended for geology students at state universities.

265T76

MALAKHOV, A.

"Evaluation and classification of curative peats."

Report submitted for the 2nd International Peat Congress, Leningrad, 15-22 Aug 63.

MALAKHOV, A., prof.

Mirages of Turgay (to be continued). Nauka i zhyttia 11
no.2:58-61 F '62. (MIRA 15:3)
(Evolution)

MALAKHIYEV, A.M.

Communication workers of Stavropol are striving to improve the quality of their work. Vest. sviazi 25 no.4:16-18 Ap '65.
(MIRA 18:6)

1. Nachal'nik Stavropol'skogo krayevogo upravleniya svyazi.

MALAKHIYEV, A.M.

The improvement of rural telecommunication is a problem of the utmost importance. Vest. sviazi 24 no.9:13-14 S '64. (MIRA 17:11)

1. Nachal'nik Stavropol'skogo krayevogo upravleniya svyazi.

MALAKHIYEV, A. M.

Along the road of reorganization. Vest. sviazi 23 no.4:18-19
Ap '63. (MIRA 16:4)

1. Nachal'nik Stavropol'skogo krayevogo upravleniya svyazi.

(Telecommunication)

MALAKHIYEV, A.M.

We are improving the servicing of agricultural workers. Vest. sviazi 21 no.1:19-20 Ja '61. (MIRA 15:5)

1. Nachal'nik Stavropol'skogo krayevogo upravleniya svyazi.
(Telecommunication)

MALAKHIYEV, A. M. and CHERIVANENKO, K. P.

"Experience in Planning and Controlling Output and Labor Productivity in the Communications Industry," Vest. Svyazi, No.3, pp 15-16, 1954

Chief, Stavropol' Kray Communications Administration

Translation - Trans.No. 533, 6 Apr 56

MALAKHINOV, A.S., agronom

Irrigated stubble crops. Zemledelie 26 no.6:77 Je '64.
(MIRA 17:8)

1. Volgogradskiy sel'skokhozyaystvennyy institut.

MALAKHAYEV, P., elektromonter

Board for remote control of machinery. Na stroi. Mosk. 2 no.7:25 Jl '59. (MIRA 12:10)

1. Stroitel'nyy uchastok No.87 tresta Mosotdelstroy No.3.
(Remote control--Equipment and supplies)

[illegible]VA, N. A. --

"Use of Penicillin in Performing Operations in Some Diseases of the Eyes and Their Appendages." Cand Med Sci, Voronezh State Medical Inst, Voronezh, 1953. (RZhBiol, No3, Oct 54)

Survey of Scientific and Technical Dissertations Defended at USSR Higher Educational Institutions (10)

SO: Sum. No. 481, 5 May 55

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001031700031-6

MALAKHANOV, V.I.

Our experience in ballast unloading. Put' i put.khoz. 4 no.3:21-22 Mr '60. (MIRA 13:5)

1. Zamestitel' nachal'nika otdeleniya dorogi, stantsiya Shilka, Zabaykal'skoy dorogi.
(Ballast (Railroads)) (Loading and unloading)

MALAKHANOV, V.I.

Pay considerable attention to track curves. Put' i put.khoz. no.9:5-7 S '57. (MIRA 10:10)

1. Glavnyy inzhener sluzhby puti Zabaykal'skoy dorogi.
(Railroads--Curves and turnouts)

MALAKHANOV, M.S. (Angarsk)

Ventilation of garages for diesel engine automobiles. Vod. i san.tekh. no.7:27 Je '60. (MIRA 13:7)
(Garages--Ventilation)